

## National Urbanization Monitoring Assessment (NUMA)

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### Environmental and Societal Issues

United States population more than tripled during the 20th century with the greatest numerical decadal increase occurring in the 1990s. As rural populations transitioned to predominantly urban, metropolitan areas became the catalyst for landscape change driven by population and economic growth (Figure 1). The improvement in telecommunications and the attraction to natural and cultural amenities has resulted in urbanization spreading into regions where few inhabitants resided prior to 1990.

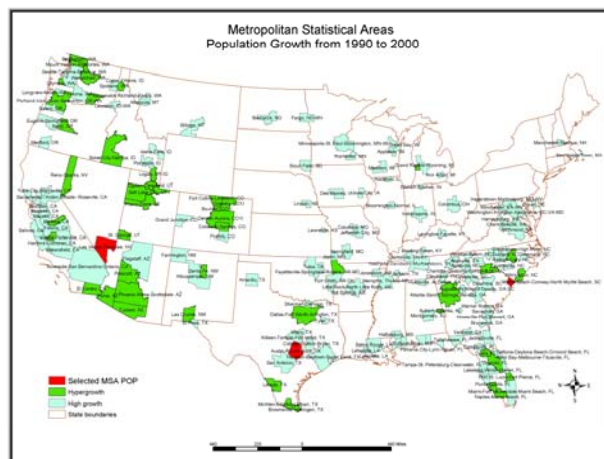


Figure 1: U.S. Metropolitan Statistical Area (MSA) population growth rates (hyper and high categories) from 1990 to 2000.

### Scientific Partners

In support of the U.S. Geological Survey (USGS) Geographic Analysis and Monitoring Program's Urban and Regional Geography research theme, NUMA shall aid in improving the understanding of the rural to urban transition and assist how planners and resource managers address urbanization impacts.

### Urban Landscape Change Monitoring

Those regions in the Nation with the fastest gross metropolitan product (GMP) and population growth rates hypothetically should be the areas in the country that are also experiencing the greatest amount of urban landscape change. Population and GMP change rates from 1990 to 2000 were calculated for all MSAs nationwide and the fact that the Austin-Round Rock MSA experienced hypergrowth, that is exceeding two standard deviations above the mean, resulted in its selection for prototyping national urbanization monitoring. Land use transitions (Figure 2) were characterized from USGS 1970s GIRAS, National Land Cover Data 1992 and GAP 2003 data in conjunction with human migratory paths (Figure 2) in an attempt to identify effective indicators for monitoring and assessing urban landscape change.

### Geographic Products and Outreach

USGS exhibited the Austin-Round Rock MSA urban landscape change research at the 2005 Association of American Geographers conference.

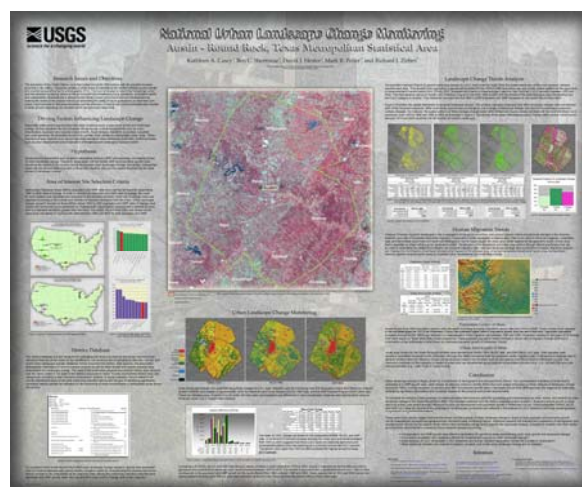


Figure 2: 1970s to 2000s land use transitions and 1970 to 2040 human migratory analysis for the Austin-Round Rock MSA.